UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,398	10/14/2004	Ivonete Markman	PU020116	9507

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EXAMINER
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ART UNIT	PAPER NUMBER
2635	

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 October 2004*.

2a)☐ This action is **FINAL**.　　2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☒ Claim(s) *3 and 4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 October 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All　b)☐ Some * c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
　　Paper No(s)/Mail Date *10-14-2004*.

4) ☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1.   The information disclosure statement (IDS) submitted on 10/14/2004 was filed

after the mailing date of the 10/14/2004. The submission is in compliance with the

provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being

considered by the examiner.

Claim Objections

2.   Claim 3 and 4 are objected to because of the following informalities: Claims 3

and 4 are not dependent on previous claims. For the purpose of this examination,

examiner will take claim 3 as dependent on claim 2 and claim 4 as dependent on claim

3. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   Claim 1-2, 5-9, and 12-20 are rejected under 35 U.S.C. 102(b) as being

anticipated over Hu et al (US5841478).

Re claim 1, Hu discloses in a system for processing video data comprising

groups of interleaved trellis encoded data packets (abstract), apparatus for providing

trellis decoded data, comprising:

means for generating decision data associated with trellis state transitions in

response to said video data (col. 16 lines 61-62), comprising means for estimating a

value for a second data bit from a pair of first and second data bits (col. 13 line 66-col.

14 line 9, Z1 and Z0 comprise the pair of data bits, the Z2 value is the closest to the

received delayed symbol point and interpreted to be estimated);

a traceback network responsive to said decision data for identifying a sequence

of antecedent trellis states, as determined by a state transition trellis (abstract, col. 15

lines 63-65), wherein said antecedent states are identified for a sequence of collocated

interleaved packets (col. 16 lines 65-67); and means responsive to said identified

sequence of antecedent trellis states, for providing said trellis decoded data (col. 17

lines 1-2).

Re claim 2, Hu discloses a system further including means for calculating for a

current trellis branch a value for the first data bit and an estimated value for the second

data bit (col. 4 lines 46-53, col. 7 lines 10-13).

Re claim 5, Hu discloses a system wherein the traceback network further

comprises means for storing (150, 655) the value of first data bit and the estimated

value of the second data bit (col. 4 lines 46-48, col. 11 lines 63-66, the decision bits of

the input decision words are Z0-Z2).

Re claim 6, Hu discloses a system further including means for providing a

plurality of trellis decoded data sequences (col. 16 lines 13-14) and means for

identifying one of the plurality of trellis decoded data sequences with a pointer updated

by identifying antecedent trellis states with said decision data (col. 16 lines 17-20).

Re claim 7, Hu discloses a system wherein the pointer selects one of the first

data bits and one of the second data bits as correctly decoded data bits (col. 12 lines

28-32, col. 13 lines 20-24).

Re claim 8, Hu discloses in a system for processing video data comprising

groups of interleaved trellis encoded data packets formed from data pairs containing a

first data bit and a second data bit, a method of providing trellis decoded data

comprising the steps of:

calculating a value for the first data bit (col. 4 lines 51-53);

estimating a value for the second data bit (col. 14 lines 6-9, the Z2 value is the

closest to the received delayed symbol point and interpreted to be estimated);

generating decision data associated with trellis state transitions in response to said video data (col. 16 lines 61-62);

identifying a sequence of antecedent trellis states in accordance with a state transition trellis (abstract, col. 15 lines 63-65), wherein said antecedent states are identified for a sequence of collocated interleaved packets in response to said decision data (col. 16 lines 65-67); and

providing said trellis decoded data in response to said identified sequence of antecedent trellis states(col. 17 lines 1-2).

Re claim 9, the claim limitations as recited have been analyzed and addressed in the above rejections with respect to claim 2.

Re claim 12, the claim limitations as recited have been analyzed and addressed in the above rejections with respect to claim 6.

Re claim 13, Hu discloses a system further comprising the step of updating the pointer once for each epoch (col. 12 lines 28-32).

Re claim 14, Hu discloses a trellis decoder (24) having a plurality of trellis branches (fig. 4) and trellis states (abstract) for decoding encoded symbols (abstract) having at least a first data bit and a second data bit (col. 8 lines 18-25, Branch Metric Data1 and Data2), the trellis decoder comprising a branch metric computer (30), the

branch metric computer being adapted to compute a metric value (col. 5 lines 45-48)

between the encoded symbol received by the trellis decoder (col. 6 lines 58-60) and the

encoded symbol associated with the trellis branches (col. 9 lines 59-62), the branch

metric computer generating a plurality of output bits associated with a current trellis

branch leading from a trellis state (col. 9 lines 59-67, col. 10 lines 3-6), the output bits

identifying characteristics of the first and second data bits (col. 7 lines 10-17, Branch

Metric Data1 and Data2 in each BMU of the BMC architecture have information of the

proximity to cosets A and C).

Re claim 15, Hu discloses a trellis decoder (24) wherein the branch metric

computer (30) further comprises a plurality of computer subunits (fig. 6), each computer

subunit being associated with a particular trellis state (col. 7 lines 63-col. 8 line 7, signal

A and B are associated with a state and each BMU of the branch metric computer has

an A and B input), each computer subunit generating a plurality of signals (col. 8 lines

22-24, fig. 6) identifying an estimated characteristic of each trellis branch leaving the

particular trellis state associated with the computer subunit (col. 7 lines 10-17, col. 8

lines 22-24).

Re claim 16, Hu discloses a trellis decoder (24) further comprising an add-

compare-select unit (43), the add-compare-select unit receiving the branch metric

computer output bits (the output of 30) identifying characteristics of the first and second

data bits (col. 7 lines 10-17, Branch Metric Data1 and Data2 in each BMU of the BMC

architecture have information of the proximity to cosets A and C), the add-compare-select unit choosing the appropriate first and second bits based on the selection of the minimum path metric (col. 8 lines 50-57, the smaller sum is selected as the output path metric data).

Re claim 17, Hu discloses a trellis decoder (24) wherein add-compare-select unit (43) further comprises a plurality of add-compare-select subunits (fig. 9), each add-compare-select subunit being associated with a particular trellis state (col. 9 lines 64-67, the four state ACS trellis), each add-compare-select subunit choosing the appropriate first and second bits corresponding to each state based on the selection of the minimum path metric into the state (col. 8 lines 50-57, the smaller sum is selected as the output path metric data).

Re claim 18, Hu discloses a trellis decoder (24) further comprising a traceback unit (47), the traceback unit receiving the estimate of the second data bit from each of the add-compare-select subunits (col. 3 line 67-col. 4 line 2, col. 10 lines 29-33, the symbols from 10 and 43 that represent the proximity or estimate of a received symbol) and selecting one of the estimated second data bits as a correctly decoded data bit (col. 4 lines 14-17, the most likely corresponding sequence of bits is interpreted as the correctly decoded bit).

Re claim 19, Hu discloses a trellis decoder (24) wherein the traceback unit (47)

receives the value of the first data bit from each of the add-compare-select subunits (the

output of 43, it would be inherent to have at least one data bit) and selects one of the

first data bits as a correctly decoded data bit (col. 4 lines 14-17, the most likely

corresponding sequence of bits is interpreted as the correctly decoded bit).

Re claim 20, the claim limitations as recited have been analyzed and addressed

in the above rejections with respect to claim 1.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 3-4 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Hu et al (US5841478) in view of Alberty (US6304616).

Re claim 3, Hu fails to teach a system further including means for concurrently

selecting the appropriate first data bit and second data bit into a trellis state in response

to the selection of the minimum path metric into the trellis state. However Alberty

teaches determining the minimal path metric (col. 4 lines 23-25) and determine the most

probable state group (col. 4 lines 26-29) within four states (col. 4 lines 18-20), each

group contains two symbols (col. 3 lines 46-50).

Therefore taking the combined teachings of Hu and Alberty as a whole, it would

have been obvious to one of ordinary skill in the art to combine the code sequence of

Alberty into the trellis decoder of Hu to estimate if a value is of high or low quality (col. 4

lines 39-44).

Re claim 4, the claim limitations as recited have been analyzed and addressed in

the above rejections with respect to claim 3. Furthermore it would have been obvious

and necessitated to select appropriate values among all trellis states U, V, W, and X as

taught by Alberty.

Re claim 10, the claim limitations as recited have been analyzed and addressed

in the above rejections with respect to claim 3.

Re claim 11, the claim limitations as recited have been analyzed and addressed

in the above rejections with respect to claim 4.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Leon-Viet Q. Nguyen whose telephone number is 571-
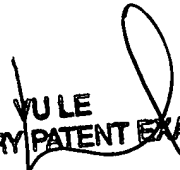
270-1185. The examiner can normally be reached on monday-friday, alternate friday off, 7:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vu Le can be reached on 571-272-7332. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Leon-Viet Nguyen/

VU LE
SUPERVISORY PATENT EXAMINER